

## Mass Gatherings and Health Care System

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The attendance of over 1000 people at certain locations and points of time has been defined as mass gatherings (MGs) by the World Health Organization (WHO) (1). Even so, the largest part of reports and articles published in this line typically refer to the number greater than 25000 people to mean such events. In recent times, the WHO further respects the presence of many people as MGs, which can in some way help evaluate the public health resources and performance of societies or countries. MGs, planned socially, culturally, religiously, politically, or in a combined manner, can all together give rise to numerous challenges for the healthcare systems. These events also demand intersectoral approaches and interdepartmental collaboration and cooperation of various institutions and organizations. Furthermore, medical emergencies occur more due to the infectious and non-infectious threats during and after MGs (2,3). On the other side of the coin, such gatherings can be of assistance to improve infrastructure resilience, augment healthcare system capacity in different countries, expand the synergy of beneficiaries and main stakeholders, and consequently promote national unity and harmony.

The term “mass gathering medicine” accordingly represents a field of medicine to explore the dimensions of healthcare and service delivery systems in holding MGs. Of note, the application of the term healthcare in preference to medicine is more fitting in these events, as the health and well-being of the people taking part in MGs can be ensured (4-6). To hold such gatherings, the following WHO recommendations should be met:

- Expanding interdepartmental and intersectional collaboration and cooperation, and establishing joint leadership for planning, organizing, and controlling activities (7);
- Ensuring compliance with healthcare standards

in terms of environmental health, water and food hygiene and safety at the production, preparation, and distribution stages, waste collection, proper sanitation facilities with regard to the large number of people, access to safe and healthy water and food, and monitoring public places, particularly refrigerator temperature (8);

- Managing prehospital care emergency medical services to prevent and treat heat stroke, and cope with road accidents, structure fires, and terrorist attacks;
- Providing multipurpose diagnostic and treatment capacity and facilities along with transportation for entering and leaving MGs in view of traffic limits and the presence of older adults and disabled people (9);
- Guaranteeing the delivery of the latest healthcare services on site and offering recommendations and guidelines for attendance in MGs;
- Organizing preventive and awareness-raising activities, preparing teams to provide healthcare services, and increasing knowledge among participants before holding MGs in order to change unhealthy behaviors, identify those at risk, practice early intervention, and track infectious diseases (10).

During MGs, it is imperative to define the roles and responsibilities of the contributing institutions and organizations in advance by holding coordination meetings, and then determine and clarify a single commander to effectively and efficiently maintain order and discipline in such events (11).

One of the main challenges of mass gathering is

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communicable disease surveillance and control in the context of large-scale population displacement, unplanned mass gathering and disruption to critical infrastructure inside the borders. Therefore, the risk of major cross-border communicable disease outbreaks is high (12).

In addition, mass gathering may lead to three potential infectious disease as public health threats: the risk of importation of infectious disease usually not seen inside the country of the gathering; the amplification of transmission during the event; and the international spread of infectious disease through global mobility network (13).

It is further recommended to build culture, promote education among community members, provide proper information, and install healthcare and medical emergency guidance placards before MGs. Maintaining order and discipline during food and beverage distribution and compliance with hygiene procedures, mainly handwashing, is also among the prerequisites for holding any type of MGs, religious and nationality, in such a way that all people observe discipline and priority right, especially for children, older adults, those with intellectual disability, and disabled people, so they can use food and beverages without disturbance, gain spiritual benefits, and feel satisfaction. To restrict the entry of private cars and other vehicles into march routes and MGs, it is additionally important to give prior notification through the relevant institutions and authorities, but let emergency vehicles, such as ambulances, fire engines, and police cars move if essential (14,15).

Holding MGs, such as the 10-kilometer street celebration for Eid al-Ghadir in Tehran, Iran, the Arbaeen procession in Iraq, and the journey of Hajj in Saudi Arabia, all require prior planning, joint efforts, and intersectoral collaboration and cooperation domestically and internationally. In order to provide and guarantee sufficient resources to improve preparedness for the incidents and emergencies in MGs, funding and human resource development are thus of utmost importance. Moreover, the collaboration and cooperation of other institutions and organizations, including Police Office, Emergency Department, Ministry of Health, municipalities, and other related entities, should be in priority during planning. Furthermore, it is suggested to apply a Geographic Information System (GIS) together with the profiles of dispatching rescue and supporting teams in critical situations. Overall, obtaining detailed information about the requirements of holding MGs, such as financial capacity and allocated credits, timing, and

workload forecasting, lead to more preparedness in this domain, thereby limited resources are effectively and efficiently managed.

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